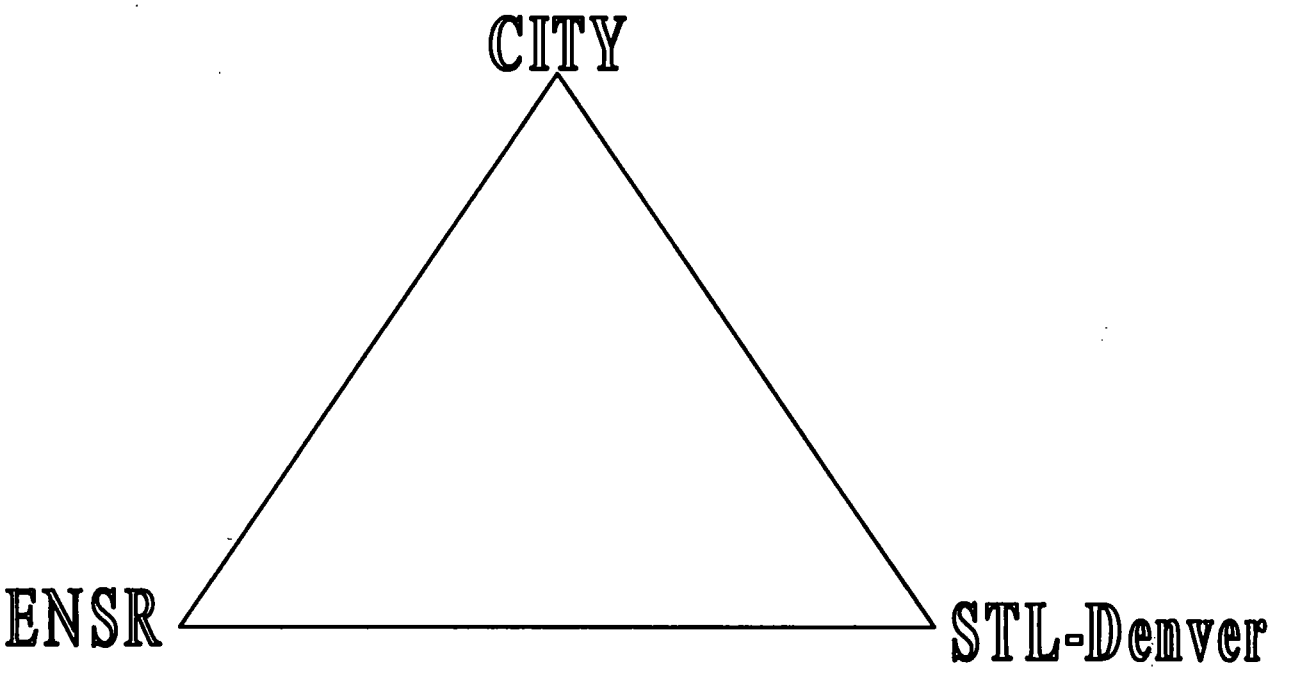
ANNUAL PERFORMANCE REPORT
GRANULAR ACTIVATED
CARBON TREATMENT SYSTEM
FOR 2003

REILLY TAR & CHEMICAL CORP.
N.P.L. SITE
ST. LOUIS PARK, MINNESOTA

SUBMITTED MARCH 15, 2004



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CITY OF ST. LOUIS PARK

UTILITY OPERATIONS

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

March 15, 2004

Regional Administrator
United States Environmental
Protection Agency, Region 5
ATTN: Darryl Owens
Mail Code HSR-6J
77 West Jackson Boulevard
Chicago, Illinois 60604

Director, Groundwater and Solid
Waste Division
Minnesota Pollution Control Agency
ATTN: Site Response Section
520 Lafayette Road North
St. Paul, MN 55155

President
Reilly Industries, Inc.
300 N. Meridian #1500
Indianapolis, Indiana 46204

Commissioner
Minnesota Department of Health
121 E. Seventh Place
P. O. Box 64975
St. Paul, MN 55164-0975

RE: United States of America, et al. vs. Reilly Tar & Chemical Corporation, et al.
File No. Civ. 4-80-469
CD-RAP 4.3.5

Gentlemen:

Enclosed is the 2003 annual performance report of the Granular Activated Carbon treatment system submitted pursuant to Section 4.3.5. of the Consent Decree Remedial Action Plan in the above captioned matter. This report is issued by the City in accordance with Section 2(a) of the Reilly/St. Louis Park Agreement (Exhibit B to the Consent Decree).

Sincerely,

Scott E. Anderson
Superintendent of Utilities

SEA/bah
Enclosure

cc: William Gregg (w/enclosures)
Tom Scott (w/o enclosures)
Reilly File

3752 Wooddale Avenue St. Louis Park, Minnesota 55416-5127
Phone: 952-924-2558 Fax: 952-924-2570 Hearing Impaired: 952-924-2518
Website: www.stlouispark.org

ANNUAL PERFORMANCE REPORT
FOR
GRANULAR ACTIVATED CARBON
TREATMENT SYSTEM 2003

Operation:

The City operated the Granular Activated Carbon (GAC) treatment system in substantial compliance with Section 4.2 of the Remedial Action Plan (RAP) during 2003, treating 361.345 million gallons of water pumped from SLP 10. This equates to an average of 30.112 million gallons per month. The monthly pump data is recorded in Table 1 of this section. The 3rd quarter sample taken on August 26th results received on October 6th totaled 175 total other PAH's. This matches the advisory level for total other PAH's, which requires action per CD-RAP Section 12.1.1. The GAC was changed out on September 24, 2003, before the results were received, therefore no action was required.

Monitoring:

The 2003 monitoring was jointly conducted by the City and Severn Trent Laboratories - Denver (STL-Denver). The City collected all samples and STL-Denver was responsible for the analytical services. Laboratory analyses were conducted at the STL-Denver laboratory in Arvada, Colorado.

The 2003 monitoring schedule (Table 2), as established in the 2003 Sampling Plan developed in accordance with the requirements of Section 3.3 of the RAP, provided for quarterly monitoring of the treatment system effluent (Table 3, page 1), and annual monitoring of the treatment system feed water (Table 3, page 2), for acid fraction analysis (Section 4.3.4) and extended PAH compounds. The extended PAH compounds were sampled in the 4th quarter. All samples were collected and analyzed in compliance with the CD-RAP.

Additional Information:

The CD-RAP provides the operational criteria for the GAC facility located adjacent to Water Treatment Plant No. 1, located at 2936 Idaho Avenue that treats water produced by SLP 10 or 15. The City constructed an additional GAC facility in 1994 located at 4701 West 41st Street (GAC-4) which treats water produced by SLP4. This GAC facility is not referenced in the RAP. The City operates the GAC4 facility within the Drinking Water Criteria established in Section 2.2. The facility is operated on a continuous pumping schedule as directed by the United States Environmental Protection Agency and the Minnesota Pollution Control Agency. The system is operated in a series of four 20,000 pound GAC vessels. The lead vessels in the series were changed out on September 24, 2003.

The GAC4 facility treated 460.081 million gallons produced by SLP4. This equates to an average of 38.340 million gallons per month. The monthly pump data is recorded in Table 4 of this section.

The GAC4 facility was shut down for two weeks in July due to the replacement of the well shaft for SLP 4.

CITY ST. LOUIS PARK
GRANULAR ACTIVATED CARBON
TREATMENT PLANT GAC 1

2003 PRODUCTION

	MILLION GALLONS	
January	18.155	
February	18.617	
March	17.787	
April	24.259	
May	31.169	
June	34.001	
July	40.341	
August	41.176	
September	31.817	++
October	32.224	
November	42.973	
December	28.826	
TOTAL	**361.345 MG**	
MONTHLY AVERAGE	**30.112 MG**	

++ GAC Change-out

TABLE 1

N:scott/reilly/gac annual/Production 2003GAC 1

2003 SAMPLING PLAN
GAC TREATMENT SYSTEM MONITORING SCHEDULE

RAP Section	Sampling Point	Start of Monitoring	Sample Frequency	Analysis
4.3.1(C)	Treated Water (TRTD	Date of plan approval	Quarterly	PAH (ppt)
4.3.3(D)	Feed Water (FEED)	Date of plan approval	Annually	PAH (ppt)
4.3.4	*Treated Water*	*Date of plan approval*	*Annually*	*PAH (ppt) Extended List*
4.3.4	Treated or Feed Water	Date of plan approval	Annually	Acid Fraction EPA Method 625

GAC Treatment System
Analytical Results 2003

		1ST QUARTER		2ND QUARTER		3RD QUARTER		4TH QUARTER	
		SLP4T	SLP10T	SLP4T	SLP10T	SLP4T	SLP10	SLP4TD	SLP10
		10-Mar	10-Mar	27-May	27-May	26-Aug	26-Aug	3-Nov	3-Nov
2,3-Benzofuran		0	0	0	0	0	0	0	0
2,3-Dihydroindene		0	0	0	5.7	0	41	0	0
1H-Indene		0	0	0	0	0	5.9	0	0
Naphthalene		0	0	0	0	1.2	2.3	2.4	1.6
Benzo (b) Thiophene		0	0	0	0	0	6.1	0	0
Quinoline*	C	**0**	**0**	0	0	0	0	0	0
1H-Indole		0	0	0	0	0	0	0	0
2-Methylnaphthalene		0	0	0	0	0	11	1.3	0
1-Methylnaphthalene		0	0	0	0	0	11	0	0
Biphenyl		0	0	0	0	0	2.5	0	0
Acenaphthylene		0	0	0	0	0	6	0	0
Acenaphthene		0	0	0	9.6	0	49	0	0
Dibenzofuran		0	0	0	0	0	5.8	0	0
Fluorene		0	0	0	0	0	16	0	0
Dibenzothiophene		0	0	0	0	0	2.1	0	0
Phenanthrene		0	0	0	0	1.3	2.4	2.6	1.8
Anthracene		0	0	0	0	0	3.5	0	0
Acridine		0	0	0	0	0	0	0	0
Carbazole		0	0	0	0	0	2.2	0	0
Fluoranthene		0	0	0	0	0	3.5	1.4	1.6
Pyrene		0	0	0	0	0	4.7	1.1	1.2
Benzo (a) Anthracene	C	**0**	**0**	0	0	0	0	0	0
Chrysene	C	**0**	**0**	0	0	0	0	0	0
Benzo (b) Fluoranthene	C	**0**	**0**	0	0	0	0	0	0
Benzo (k) Fluoranthene	C	**0**	**0**	0	0	0	0	0	0
Benzo (e) Pyrene		0	0	0	0	0	0	0	0
Benzo (a) Pyrene	C	**0**	**0**	0	0	0	0	0	0
Perylene		0	0	0	0	0	0	0	0
Indino (1,2,3-cd) Pyrene	C	**0**	**0**	0	0	0	0	0	0
Dibenz (a,h) Anthracene	C	**0**	**0**	0	0	0	0	0	0
Benzo (g,h,i) Perylene	C	**0**	**0**	0	0	0	0	0	0
TOTAL OTHER PAH		**0**	**0**	**0**	**15.3**	**2.5**	**175**	**8.8**	**6.2**
BENZO(a)PYRENE + DIBENZO(A,H)		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL CARCINOGEN		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

GAC Treatment System
Analytical Results 2003

		GAC FEED	
		SLP4DFEED	SLP10FEED
		20-May	2-Sep
2,3-Benzofuran		0	0
2,3-Dihydroindene		95	210
1H-Indene		33	56
Naphthalene		0	7.5
Benzo (b) Thiophene		9.3	41
Quinoline*	C	0	5.7
1H-Indole		0	4.3
2-Methylnaphthalene		0	1.4
1-Methylnaphthalene		0	85
Biphenyl		0	15
Acenaphthylene		0	74
Acenaphthene		92	500
Dibenzofuran		0	54
Fluorene		0	130
Dibenzothiophene		0	18
Phenanthrene		0	17
Anthracene		0	7.2
Acridine		4.1	3.4
Carbazole		7.7	26
Fluoranthene		0	28
Pyrene		8.1	53
Benzo (a) Anthracene	C	0	1.5
Chrysene	C	0	0.99
Benzo (b) Fluoranthene	C	0	0
Benzo (k) Fluoranthene	C	0	0
Benzo (e) Pyrene		0	0
Benzo (a) Pyrene	C	0	0
Perylene		0	0
Indino (1,2,3-cd) Pyrene	C	0	0
Dibenz (a,h) Anthracene	C	0	0
Benzo (g,h,i) Perylene	C	0	0
TOTAL OTHER PAH		**249.2**	**1330.8**
BENZO(a)PYRENE + DIBENZO(A,H)		**0**	**0**
TOTAL CARCINOGEN		**0**	**8.19**

CITY ST. LOUIS PARK
GRANULAR ACTIVATED CARBON
TREATMENT PLANT GAC 4

2003 PRODUCTION

	MILLION GALLONS	
January	43.973	
February	39.583	
March	43.945	
April	23.257	
May	43.897	
June	42.377	
July	18.934	(1)
August	41.130	
September	37.343	++
October	42.025	
November	39.680	
December	43.937	
TOTAL	**460.081**	**MG**
MONTHLY AVERAGE	**38.340**	**MG**

++ GAC Change-out

(1) Treatment plant was down due to the replacement of well shaft.

TABLE 4

RAP SECTION 4.3.1 (C)

PAH ANALYSIS

FIRST QUARTER

PAH ANALYSIS

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3C110160

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

April 10, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • www.stlinc.com

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(*The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• **Volatile GC/MS**	
• **Semivolatile GC/MS**	/
• **Volatile GC**	
• **Semivolatile GC**	
• **LC/MS or HPLC**	
• **Metals**	
• **General Chemistry**	
• **Subcontracted Data**	

CASE NARRATIVE
D3C110160

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Seven samples were received under chain of custody on March 11, 2003. The samples were received in good condition temperatures of 2.2°C, 3.6°C, 4.6°C, 2.7°C, 2.3°C and 2.4°C.

GC/MS Semivolatiles, SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2002 Quality Assurance Project Plan (QAPP) for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Sample D3C110160-005 demonstrated a recovery of the surrogate chrysene-d12 that was below control limits. Sample D3C110160-006 demonstrated recoveries of the surrogates chrysene-d12 and fluorene that were below control limits. There was insufficient sample volume available for either sample for re-extraction.

The LCS associated with batch 3073163 demonstrated a recovery for quinoline that was below control limits. Historical data shows that this compound typically has poor recoveries. There was insufficient sample volume available for re-extraction.

The MS/MSD performed on sample D3C110160-001 demonstrated recoveries that were below control limits for benzo(e)pyrene. The MS demonstrated an additional recovery that was below control limits for chrysene and the surrogate chrysene-d12. The relative percent difference was above control limits for benzo(e)pyrene and quinoline.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP. Based on the exceptions noted we achieved 95.4% completeness.

DATA COMPLETENESS CALCULATION		
LOT:	D3C110160	
ANALYSIS:	PAHs by SW846-8270C SIM	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	31
MB Surrogates	3	3
LCS	7	6
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	5
MS Surrogates	3	2
MSD	7	6
MSD Surrogates	3	3
MS/MSD RPD	7	5
Sample/Dup. RPD	31	31
Sample Surrogates	21	18
Internal STD Area	33	33
TOTAL	**218**	**208**
% Completeness		**95.4%**

*A MS/MSD was performed on sample D3C110160-001.

Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD Calculation Lot D3C110160					
Sample: GAC-SLP4T-031003		DUP: GAC-SLP4TD-031003			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	ND	Acenaphthene	ND	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0.0	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	ND	Naphthalene	ND	0.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	ND	Phenanthrene	ND	0.0	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3C110160

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SLP6-031003 03/10/03 12:45 006				
Acenaphthene	59	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	10	4.8	ng/L	SW846 8270C SIM
Acridine	6.0 J	6.2	ng/L	SW846 8270C SIM
2,3-Dihydroindene	43	5.0	ng/L	SW846 8270C SIM
Fluorene	5.5	4.1	ng/L	SW846 8270C SIM
W48-031003 03/10/03 13:45 007				
Acenaphthene	68	5.7	ng/L	SW846 8270C SIM
Acridine	13	6.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	5.2	5.2	ng/L	SW846 8270C SIM
2,3-Dihydroindene	7.3	5.0	ng/L	SW846 8270C SIM
Indene	11	4.7	ng/L	SW846 8270C SIM
Pyrene	3.1 J	4.2	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3C110160

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3C110160

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3C110160

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FJXCQ	001	GAC-SLP4T-031003	03/10/03	11:0C
FJXCV	002	GAC-SLP4TD-031003	03/10/03	11:15
FJXCW	003	GAC-SLP4TFB-031003	03/10/03	12:00
FJXCX	004	GAC-SLP4TFBD-031003	03/10/03	12:15
FJXC2	005	GAC-SLP10T-031003	03/10/03	12:30
FJXC3	006	SLP6-031003	03/10/03	12:45
FJXC6	007	W48-031003	03/10/03	13:45

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4T-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110160-001 Work Order #...: FJXCQ1AA Matrix.....: WG
Date Sampled...: 03/10/03 Date Received..: 03/11/03
Prep Date.....: 03/15/03 Analysis Date..: 04/07/03
Prep Batch #...: 3073163 Analysis Time..: 17:06
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	49	(30 - 118)
Fluorene d-10	58	(41 - 162)
Naphthalene-d8	65	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TD-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110160-002 Work Order #...: FJXCV1AA Matrix.....: WG
Date Sampled...: 03/10/03 Date Received..: 03/11/03
Prep Date.....: 03/15/03 Analysis Date..: 04/07/03
Prep Batch #...: 3073163 Analysis Time..: 19:00
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	34	(30 - 118)
Fluorene d-10	46	(41 - 162)
Naphthalene-d8	53	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFB-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110160-003 Work Order #...: FJXCW1AA Matrix.....: WG
Date Sampled...: 03/10/03 Date Received..: 03/11/03
Prep Date.....: 03/15/03 Analysis Date..: 04/07/03
Prep Batch #...: 3073163 Analysis Time..: 19:38
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	53	(30 - 118)
Fluorene d-10	44	(41 - 162)
Naphthalene-d8	59	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFBD-031003

GC/MS Semivolatiles

Lot-Sample #...: D3C110160-004 Work Order #...: FJXCX1AA Matrix.....: WG
Date Sampled...: 03/10/03 Date Received..: 03/11/03
Prep Date.....: 03/15/03 Analysis Date..: 04/07/03
Prep Batch #...: 3073163 Analysis Time..: 20:16
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	57	(30 - 118)
Fluorene d-10	42	(41 - 162)
Naphthalene-d8	56	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP10T-031003

GC/MS Semivolatiles

Lot-Sample #...:	D3C110160-005	**Work Order #...:**	FJXC21AA	**Matrix.....:**	WG
Date Sampled...:	03/10/03	**Date Received..:**	03/11/03		
Prep Date.....:	03/15/03	**Analysis Date..:**	04/07/03		
Prep Batch #...:	3073163	**Analysis Time..:**	20:54		
Dilution Factor:	1				
		Method.....:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25 *	(30 - 118)
Fluorene d-10	43	(41 - 162)
Naphthalene-d8	55	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

QC DATA ASSOCIATION SUMMARY

D3C110160

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3073163	3073053
002	WG	SW846 8270C SIM		3073163	3073053
003	WG	SW846 8270C SIM		3073163	3073053
004	WG	SW846 8270C SIM		3073163	3073053
005	WG	SW846 8270C SIM		3073163	3073053
006	WG	SW846 8270C SIM		3073163	3073053
007	WG	SW846 8270C SIM		3073163	3073053

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110160 **Work Order #...:** FJ5V71AA **Matrix.....:** WATER
MB Lot-Sample #: D3C140000-163

Prep Date.....: 03/15/03 **Analysis Time..:** 15:50
Analysis Date..: 04/07/03 **Prep Batch #...:** 3073163
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	57	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	60	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110160 Work Order #...: FJ5V71AC Matrix.....: WATER
LCS Lot-Sample#: D3C140000-163
Prep Date.....: 03/15/03 Analysis Date..: 04/07/03
Prep Batch #...: 3073163 Analysis Time..: 16:28
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**31**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**49**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**62**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**65**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**67**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**76**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**29 a**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 118)
Fluorene d-10	53	(41 - 162)
Naphthalene-d8	74	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110160 **Work Order #...:** FJ5V71AC **Matrix.....:** WATER
LCS Lot-Sample#: D3C140000-163
Prep Date.....: 03/15/03 **Analysis Date..:** 04/07/03
Prep Batch #...: 3073163 **Analysis Time..:** 16:28
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	**10.0**	**3.10**	**ng/L**	**31**	**SW846 8270C S**
Chrysene	**10.0**	**4.90**	**ng/L**	**49**	**SW846 8270C S**
Fluorene	**10.0**	**6.24**	**ng/L**	**62**	**SW846 8270C S**
Indene	**10.0**	**6.53**	**ng/L**	**65**	**SW846 8270C S**
2-Methylnaphthalene	**10.0**	**6.74**	**ng/L**	**67**	**SW846 8270C S**
Naphthalene	**10.0**	**7.63**	**ng/L**	**76**	**SW846 8270C S**
Quinoline	**10.0**	**a**	**ng/L**	**29**	**SW846 8270C S**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 118)
Fluorene d-10	53	(41 - 162)
Naphthalene-d8	74	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110160 Work Order #...: FJXCQ1AC-MS Matrix.....: WG
MS Lot-Sample #: D3C110160-001 FJXCQ1AD-MSD
Date Sampled...: 03/10/03 Date Received..: 03/11/03
Prep Date.....: 03/15/03 Analysis Date..: 04/07/03
Prep Batch #...: 3073163 Analysis Time..: 17:44
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	**0.0 a**	**(30 - 150)**			**SW846 8270C SIM**
	15 a,p	**(30 - 150)**	**200**	**(0-50)**	**SW846 8270C SIM**
Chrysene	**21 a**	**(30 - 132)**			**SW846 8270C SIM**
	34	**(30 - 132)**	**40**	**(0-50)**	**SW846 8270C SIM**
Fluorene	**47**	**(30 - 132)**			**SW846 8270C SIM**
	55	**(30 - 132)**	**8.3**	**(0-50)**	**SW846 8270C SIM**
Indene	**50**	**(30 - 150)**			**SW846 8270C SIM**
	57	**(30 - 150)**	**5.2**	**(0-50)**	**SW846 8270C SIM**
2-Methylnaphthalene	**54**	**(30 - 150)**			**SW846 8270C SIM**
	64	**(30 - 150)**	**8.6**	**(0-50)**	**SW846 8270C SIM**
Naphthalene	**63**	**(30 - 150)**			**SW846 8270C SIM**
	76	**(30 - 150)**	**12**	**(0-50)**	**SW846 8270C SIM**
Quinoline	**39**	**(30 - 150)**			**SW846 8270C SIM**
	73 p	**(30 - 150)**	**53**	**(0-50)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	24 *	(30 - 118)
	39	(30 - 118)
Fluorene d-10	42	(41 - 162)
	47	(41 - 162)
Naphthalene-d8	52	(30 - 108)
	60	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

* Surrogate recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3C110160 Work Order #...: FJXCQ1AC-MS Matrix.....: WG
MS Lot-Sample #: D3C110160-001 FJXCQ1AD-MSD
Date Sampled...: 03/10/03 Date Received..: 03/11/03
Prep Date.....: 03/15/03 Analysis Date..: 04/07/03
Prep Batch #...: 3073163 Analysis Time..: 17:44
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	ND	10.7	0.0	ng/L	0.0 a		SW846 8270C SIM
	ND	9.89	1.52	ng/L	15 a,p	200	SW846 8270C SIM
Chrysene	ND	10.7		ng/L	21 a		SW846 8270C SIM
	ND	9.89	3.33	ng/L	34	40	SW846 8270C SIM
Fluorene	ND	10.7	5.04	ng/L	47		SW846 8270C SIM
	ND	9.89	5.47	ng/L	55	8.3	SW846 8270C SIM
Indene	ND	10.7	5.38	ng/L	50		SW846 8270C SIM
	ND	9.89	5.67	ng/L	57	5.2	SW846 8270C SIM
2-Methylnaphthalene	ND	10.7	5.81	ng/L	54		SW846 8270C SIM
	ND	9.89	6.33	ng/L	64	8.6	SW846 8270C SIM
Naphthalene	ND	10.7	6.72	ng/L	63		SW846 8270C SIM
	ND	9.89	7.55	ng/L	76	12	SW846 8270C SIM
Quinoline	ND	10.7	4.18	ng/L	39		SW846 8270C SIM
	ND	9.89	7.23	ng/L	73 p	53	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	24 *	(30 - 118)
	39	(30 - 118)
Fluorene d-10	42	(41 - 162)
	47	(41 - 162)
Naphthalene-d8	52	(30 - 108)
	60	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

* Surrogate recovery is outside stated control limits.

Chain Custody Record

3/11/03

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
CITY OF ST. LOUIS PARK	SCOTT ANDERSON	3-10-03	150703
Address UTILITY DIVISION 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2570 (952) 924-2570	Lab Number	Page ____ of ____
City ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact	
Project Name and Location (State): SAME	Carrier/Waybill Number: FED EX 806824123 0		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Analysis: PPT HAHS	Special Instructions/ Conditions of Receipt
GAC-SLP4T-031003 (CA 90002)	3-10-03	11:00		X			X						6	X	PPT 5
GAC-SLP4TD-031003	3-10-03	11:15		X			X						6	X	PPT 5
GAC-SLP4TMS-031003 (CA 90015)	3-10-03	11:30		X			X						6	X	PPT 5
GAC-SLP4TMSD-031003	3-10-03	11:45		X			X						6	X	PPT 5
GAC-SLP4TFB-031003 (CA 4607)	3-10-03	12:00		X			X						6	X	PPT 5
GAC-SLP4TFBD-031003	3-10-03	12:15		X			X						6	X	PPT 5
GAC-SLP10T-031003 (CA 2012)	3-10-03	12:30		X			X						6	X	PPT 5
SLP6-031003	3-10-03	12:45		X			X						6	X	PPT 5

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: MIKE	3-10-03	1400	1. Received By:	3/11/03	0830
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments: 22

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: City of St. Louis Park	Project Manager: Scott Anderson	Date: 3/10/03	Chain of Custody Number: 150740
Address: 3752 Wooddale Ave	Telephone Number (Area Code)/Fax Number: 952-924-2557	Lab Number:	Page 1 of 1
City: St. Louis Park / State: MN / Zip Code: 55416	Site Contact: Bill Gregg	Lab Contact: Brian Stringer	
Project Name and Location (State): Reilly	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis (Attach list if more space is needed): PAH-PPT-S	Special Instructions/ Conditions of Receipt
W48-031003	3/10/03	1345		X			6						X	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Chris Bachun	3/10/03	1400	1. Received By:	3/11/03	0630
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments
23

DISTRIBUTION: WHITE returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

SECOND QUARTER

PAH ANALYSIS

GAC 2ND Qtr

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3E280223

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Brian Stringer
Project Manager

June 26, 2003

Severn Trent Laboratories, Inc.
STL Denver • 4955 Yarrow Street, Arvada, CO 80002
Tel 303 736 0100 Fax 303 431 7171 • *www.stl-inc.com*

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Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

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- Table of Contents
- Case Narrative
- Executive Summary – Detection Highlights
- Methods Summary
- Method/Analyst Summary
- Lot Sample Summary
- Analytical Results
- QC Data Association Summary
- Chain-of-Custody

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Radiochemistry	
• Subcontracted Data	

CASE NARRATIVE
D3E280223

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Six samples were received under chain of custody on May 28, 2003. The samples were received in good condition at temperatures of 4.7°C, 4.6°C, 4.9°C, and 4.2°C.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

Samples D3E280223-002, 005, and 006 demonstrated recoveries of the surrogate chrysene-d12 below control limits at 22%, 25%, and 26% respectively. The other two surrogates are in control. This may indicate a low bias in the sample data; however no sample volume remains for reanalysis and no further corrective action was taken. Matrix effects are suspected, as demonstrated by low surrogate recoveries in sample 001 and the MS/MSD performed on sample 001.

The MS/MSD performed on sample D3E280223-001 demonstrated recoveries that were below control limits for benzo(e)pyrene and quinoline. Additionally, the surrogate chrysene-d12 was below control limits in the MSD.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT: D3E280223		
ANALYSIS:	SW846-8270C SIM	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	31
MB Surrogates	3	3
LCS	7	7
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	5
MS Surrogates	3	3
MSD	7	5
MSD Surrogates	3	2
MS/MSD RPD	7	6
Sample/Dup. RPD	31	31
Sample Surrogates	18	15
Samples and QC Internal Standard Area	30	30
TOTAL	212	203
% Completeness	95.8%	

*A MS/MSD was performed on sample GAC-SLP4T-052703

Sample Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD					
LOT D3E280223					
Sample: GAC-SLP4T-052703		DUP: GAC-SLP4TD-052703			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	ND	Acenaphthene	ND	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0.0	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	ND	Naphthalene	ND	0.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	ND	Phenanthrene	ND	0.0	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3E280223

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
GAC-SLP10T-052703 05/27/03 12:00 005				
Acenaphthene	9.6	5.7	ng/L	SW846 8270C SIM
2,3-Dihydroindene	5.7	5.0	ng/L	SW846 8270C SIM
PCJ-SLP6-052703 05/27/03 12:15 006				
Acenaphthene	74	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	12	4.8	ng/L	SW846 8270C SIM
Acridine	5.3 J	6.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	2.6 J	5.2	ng/L	SW846 8270C SIM
Dibenzothiophene	2.1 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	61	5.0	ng/L	SW846 8270C SIM
Fluorene	8.4	4.1	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3E280223

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3E280223

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3E280223

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FPHHV	001	GAC-SLP4T-052703	05/27/03	12:40
FPHH0	002	GAC-SLP4TD-052703	05/27/03	12:50
FPHH1	003	GAC-SLP4TFB-052703	05/27/03	13:20
FPHH2	004	GAC-SLP4TFBD-052703	05/27/03	12:30
FPHH3	005	GAC-SLP10T-052703	05/27/03	12:00
FPHH4	006	PCJ-SLP6-052703	05/27/03	12:15

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4T-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-001 Work Order #...: FPHHV1AA Matrix.....: WG
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/24/03
Prep Batch #...: 3153163 Analysis Time..: 21:21
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	31	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	59	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TD-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-002 Work Order #...: FPHH01AA Matrix.....: WG
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/24/03
Prep Batch #...: 3153163 Analysis Time..: 23:15
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	22 *	(30 - 118)
Fluorene d-10	49	(41 - 162)
Naphthalene-d8	61	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFB-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-003 Work Order #...: FPHH11AA Matrix.....: WG
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/24/03
Prep Batch #...: 3153163 Analysis Time..: 23:53
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	62	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	55	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFBD-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-004 Work Order #...: FPHH21AA Matrix.....: WG
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/25/03
Prep Batch #...: 3153163 Analysis Time..: 00:31
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	53	(30 - 118)
Fluorene d-10	41	(41 - 162)
Naphthalene-d8	54	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP10T-052703

GC/MS Semivolatiles

Lot-Sample #...: D3E280223-005 Work Order #...: FPHH31AA Matrix.....: WG
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/25/03
Prep Batch #...: 3153163 Analysis Time..: 01:09
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**9.6**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**5.7**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25 *	(30 - 118)
Fluorene d-10	45	(41 - 162)
Naphthalene-d8	62	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3E280223 Work Order #...: FPQKC1AA Matrix.....: WATER
MB Lot-Sample #: D3F020000-163

Prep Date.....: 06/02/03 Analysis Time..: 20:07
Analysis Date..: 06/24/03 Prep Batch #...: 3153163
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	59	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	63	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E280223 Work Order #...: FPQKC1AC Matrix.....: WATER
LCS Lot-Sample#: D3F020000-163
Prep Date.....: 06/02/03 Analysis Date..: 06/24/03
Prep Batch #...: 3153163 Analysis Time..: 20:44
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	61	(30 - 150)	SW846 8270C SIM
Chrysene	56	(30 - 132)	SW846 8270C SIM
Fluorene	57	(30 - 132)	SW846 8270C SIM
Indene	55	(30 - 150)	SW846 8270C SIM
2-Methylnaphthalene	57	(30 - 150)	SW846 8270C SIM
Naphthalene	63	(30 - 150)	SW846 8270C SIM
Quinoline	55	(30 - 150)	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	57	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E280223 Work Order #...: FPQKC1AC Matrix.....: WATER
LCS Lot-Sample#: D3F020000-163
Prep Date.....: 06/02/03 Analysis Date..: 06/24/03
Prep Batch #...: 3153163 Analysis Time..: 20:44
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	10.0	6.14	ng/L	61	SW846 8270C S
Chrysene	10.0	5.58	ng/L	56	SW846 8270C S
Fluorene	10.0	5.71	ng/L	57	SW846 8270C S
Indene	10.0	5.55	ng/L	55	SW846 8270C S
2-Methylnaphthalene	10.0	5.70	ng/L	57	SW846 8270C S
Naphthalene	10.0	6.35	ng/L	63	SW846 8270C S
Quinoline	10.0	5.46	ng/L	55	SW846 8270C S

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	60	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	57	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3E280223 Work Order #...: FPHHV1AC-MS Matrix.....: WG
MS Lot-Sample #: D3E280223-001 FPHHV1AD-MSD
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/24/03
Prep Batch #...: 3153163 Analysis Time..: 21:59
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	0.0 a	(30 - 150)			SW846 8270C SIM
	0.0 a	(30 - 150)	0.0	(0-50)	SW846 8270C SIM
Chrysene	32	(30 - 132)			SW846 8270C SIM
	30	(30 - 132)	20	(0-50)	SW846 8270C SIM
Fluorene	55	(30 - 132)			SW846 8270C SIM
	65	(30 - 132)	4.0	(0-50)	SW846 8270C SIM
Indene	53	(30 - 150)			SW846 8270C SIM
	67	(30 - 150)	11	(0-50)	SW846 8270C SIM
2-Methylnaphthalene	56	(30 - 150)			SW846 8270C SIM
	70	(30 - 150)	9.9	(0-50)	SW846 8270C SIM
Naphthalene	67	(30 - 150)			SW846 8270C SIM
	89	(30 - 150)	16	(0-50)	SW846 8270C SIM
Quinoline	28 a	(30 - 150)			SW846 8270C SIM
	0.0 a,p	(30 - 150)	200	(0-50)	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	32	(30 - 118)
	29 *	(30 - 118)
Fluorene d-10	43	(41 - 162)
	50	(41 - 162)
Naphthalene-d8	56	(30 - 108)
	69	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3E280223 Work Order #...: FPHHV1AC-MS Matrix.....: WG
MS Lot-Sample #: D3E280223-001 FPHHV1AD-MSD
Date Sampled...: 05/27/03 Date Received..: 05/28/03
Prep Date.....: 06/02/03 Analysis Date..: 06/24/03
Prep Batch #...: 3153163 Analysis Time..: 21:59
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	ND	10.7	0.0	ng/L	0.0 a		SW846 8270C SIM
	ND	9.55	0.0	ng/L	0.0 a	0.0	SW846 8270C SIM
Chrysene	ND	10.7	3.48	ng/L	32		SW846 8270C SIM
	ND	9.55	2.85	ng/L	30	20	SW846 8270C SIM
Fluorene	ND	10.7	5.92	ng/L	55		SW846 8270C SIM
	ND	9.55	6.16	ng/L	65	4.0	SW846 8270C SIM
Indene	ND	10.7	5.74	ng/L	53		SW846 8270C SIM
	ND	9.55	6.40	ng/L	67	11	SW846 8270C SIM
2-Methylnaphthalene	ND	10.7	6.05	ng/L	56		SW846 8270C SIM
	ND	9.55	6.68	ng/L	70	9.9	SW846 8270C SIM
Naphthalene	ND	10.7	7.22	ng/L	67		SW846 8270C SIM
	ND	9.55	8.46	ng/L	89	16	SW846 8270C SIM
Quinoline	ND	10.7		ng/L	28 a		SW846 8270C SIM
	ND	9.55	0.0	ng/L	0.0	200	SW846 8270C SIM

Qualifiers: a,p

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	32	(30 - 118)
	29 *	(30 - 118)
Fluorene d-10	43	(41 - 162)
	50	(41 - 162)
Naphthalene-d8	56	(30 - 108)
	69	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

4.7, 4.6, 4.9, 4.2
MB
5/28/03

Chain of Custody Record

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: CITY OF ST. LOUIS PARK, UTILITY DIVISION	Project Manager: SCOTT ANDERSON	Date: 5-27-03	Chain of Custody Number: 150737
Address: 3752 WOODDALE AVENUE	Telephone Number (Area Code)/Fax Number: 924-2557 (952) 924-2570	Lab Number:	Page ____ of ____
City: ST. LOUIS PARK, MN 55416	Site Contact: SAME	Lab Contact:	
Project Name and Location (State): SAME	Carrier/Waybill Number: FED EX 806824129 6		
Contract/Purchase Order/Quote No.:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: PPL PAHs	Special Instructions/ Conditions of Receipt
C-SLP4T-052703 CW# 0004	5-27-03	11:40		X			X					6	X	PPL 5
C-SLP4TD-052703		11:50		X			X					6	X	
C-SLP4TMS-052703 CW# 0015		1:00		X			X					6	X	
C-SLP4TMSD-052703		1:10		X			X					6	X	
C-SLP4TFB-052703 CW# 0014		11:20		X			X					6	X	
C-SLP4TFBD-052703		11:30		X			X					6	X	
C-SLP10T-052703 CW# 0007		12:00		X			X					6	X	
PGI-SLPG-052703	5-27-03	12:15	X	X			X					6	X	PPL 5

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	5-27-03	1400	1. Received By: [signature]	5/28/03	0845
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments
21

DISTRIBUTION: WH (returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy)

THIRD QUARTER

PAH ANALYSIS

SEVERN TRENT STL

ANALYTICAL REPORT

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3H270264

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Gail DeRuzzo
Project Manager

October 6, 2003

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)

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- Table of Contents
- Case Narrative
- Executive Summary – Detection Highlights
- Methods Summary
- Method/Analyst Summary
- Lot Sample Summary
- Analytical Results
- QC Data Association Summary
- Chain-of-Custody

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3H270264

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Five samples were received under chain of custody on August 27, 2003. The samples were received in good condition at temperatures of 2.0, 2.1, 4.0, and 2.3°C.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The surrogate recovery of Fluorene-d10 was below the 30% threshold for the samples D3H270264-001, 005, the Method Blank, and the MS of sample 001. The surrogate recovery of Chrysene-d12 was below the 30% threshold for samples D3H270264-001, 002, 003, 005, the Method Blank, and the MS/MSD of sample 001. The surrogate recovery of Naphthalene-d8 was below the 30% threshold for the Method Blank.

The Laboratory Control Sample could not be analyzed and reported because the vial containing the extract was found to be cracked and the LCS was evaporated. There was insufficient sample volume to re-extract the samples and the holding time has expired. The client was notified.

The MS/MSD performed on sample D3H270264-001 demonstrated recoveries that were below the control limits for Benzo(e)pyrene and Chrysene In addition the relative percent difference was outside control limits for Quinoline.

Detections in the Field Blank and Field Blank Duplicate are less than the reporting limit.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT:	D3H270264	
ANALYSIS:	SW846-8270C SIM	
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	31	31
MB Surrogates	3	0
LCS	7	0
LCS Surrogates	3	0
FB/FBD	62	62
MS	7	5
MS Surrogates	3	1
MSD	7	6
MSD Surrogates	3	2
MS/MSD RPD	7	6
Sample/Dup. RPD	31	31
Sample Surrogates	15	9
Samples and QC Internal Standard Area	24	24
TOTAL	**203**	**177**
% Completeness	**87.2%**	

*A MS/MSD was performed on sample W410-090203.

Sample Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD					
LOT D3H270264					
Sample: GACSLP4T 08-26-03		DUP: GACSLP4TD 08-26-03			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	ND	Acenaphthene	ND	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0.0	
Fluoranthene	ND	Fluoranthene	ND	0.0	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	ND	0.0	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	1.0	Naphthalene	1.2	18.2	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	1.1	Phenanthrene	1.3	16.7	
Pyrene	ND	Pyrene	ND	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

METHODS SUMMARY

D3H270264

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

EXECUTIVE SUMMARY - Detection Highlights

D3H270264

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
GACSLP4T 08-26-03 08/26/03 09:45 001				
Naphthalene	1.0 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.1 J	6.3	ng/L	SW846 8270C SIM
GACSLP4TD 08-26-03 08/26/03 09:50 002				
Naphthalene	1.2 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.3 J	6.3	ng/L	SW846 8270C SIM
GACSLP10T 08-26-03 08/26/03 10:30 003				
Acenaphthene	49	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	6.0	4.8	ng/L	SW846 8270C SIM
Anthracene	3.5 J	4.2	ng/L	SW846 8270C SIM
Benzo(b)thiophene	6.1	5.2	ng/L	SW846 8270C SIM
Biphenyl	2.5 J	5.6	ng/L	SW846 8270C SIM
Carbazole	2.2 J	3.8	ng/L	SW846 8270C SIM
Dibenzofuran	5.8	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	2.1 J	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	41	5.0	ng/L	SW846 8270C SIM
Fluoranthene	3.5 J	4.6	ng/L	SW846 8270C SIM
Fluorene	16	4.1	ng/L	SW846 8270C SIM
Indene	5.9	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	11	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	11	5.6	ng/L	SW846 8270C SIM
Naphthalene	2.3 J	8.6	ng/L	SW846 8270C SIM
Phenanthrene	2.4 J	6.3	ng/L	SW846 8270C SIM
Pyrene	4.7	4.2	ng/L	SW846 8270C SIM
GACSLP10FB 08-26-03 08/26/03 10:40 004				
Naphthalene	1.6 J	8.6	ng/L	SW846 8270C SIM
GACSLP10FBD 08-26-03 08/26/03 10:50 005				
Naphthalene	1.5 J	8.6	ng/L	SW846 8270C SIM

METHOD / ANALYST SUMMARY

D3H270264

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3H270264

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAM TIM
FW49W	001	GACSLP4T 08-26-03	08/26/03	09:
FW497	002	GACSLP4TD 08-26-03	08/26/03	09:
FW498	003	GACSLP10T 08-26-03	08/26/03	10:
FW5AA	004	GACSLP10FB 08-26-03	08/26/03	10:
FW5AD	005	GACSLP10FBD 08-26-03	08/26/03	10:

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: GACSLP4T 08-26-03

GC/MS Semivolatiles

Lot-Sample #...: D3H270264-001 Work Order #...: FW49W1AA Matrix.....: WG
Date Sampled...: 08/26/03 Date Received..: 08/27/03
Prep Date.....: 08/31/03 Analysis Date..: 10/02/03
Prep Batch #...: 3243112 Analysis Time..: 02:07
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.0 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.1 J**	**6.3**	**ng/L**
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	24 *	(30 - 118)
Fluorene d-10	29 *	(41 - 162)
Naphthalene-d8	37	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GACSLP10T 08-26-03

GC/MS Semivolatiles

Lot-Sample #...: D3H270264-003 Work Order #...: FW4981AA Matrix.....: WG
Date Sampled...: 08/26/03 Date Received..: 08/27/03
Prep Date.....: 08/31/03 Analysis Date..: 10/02/03
Prep Batch #...: 3243112 Analysis Time..: 04:40
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	49	5.7	ng/L
Acenaphthylene	6.0	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	3.5 J	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	6.1	5.2	ng/L
Biphenyl	2.5 J	5.6	ng/L
Carbazole	2.2 J	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	5.8	5.7	ng/L
Dibenzothiophene	2.1 J	4.1	ng/L
2,3-Dihydroindene	41	5.0	ng/L
Fluoranthene	3.5 J	4.6	ng/L
Fluorene	16	4.1	ng/L
Indene	5.9	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	11	5.9	ng/L
1-Methylnaphthalene	11	5.6	ng/L
Naphthalene	2.3 J	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	2.4 J	6.3	ng/L
Pyrene	4.7	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	23 *	(30 - 118)
Fluorene d-10	42	(41 - 162)
Naphthalene-d8	49	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GACSLP4TD 08-26-03

GC/MS Semivolatiles

Lot-Sample #...: D3H270264-002 Work Order #...: FW4971AA Matrix.....: WG
Date Sampled...: 08/26/03 Date Received..: 08/27/03
Prep Date.....: 08/31/03 Analysis Date..: 10/02/03
Prep Batch #...: 3243112 Analysis Time..: 04:02
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.2 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.3 J**	**6.3**	**ng/L**
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	24 *	(30 - 118)
Fluorene d-10	35 *	(41 - 162)
Naphthalene-d8	49	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GACSLP10FB 08-26-03

GC/MS Semivolatiles

Lot-Sample #...: D3H270264-004 Work Order #...: FW5AA1AA Matrix.....: WG
Date Sampled...: 08/26/03 Date Received..: 08/27/03
Prep Date.....: 08/31/03 Analysis Date..: 10/02/03
Prep Batch #...: 3243112 Analysis Time..: 05:18
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.6 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	54	(30 - 118)
Fluorene d-10	35 *	(41 - 162)
Naphthalene-d8	40	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: GACSLP10FBD 08-26-03

GC/MS Semivolatiles

Lot-Sample #...: D3H270264-005 Work Order #...: FW5AD1AA Matrix.....: WG
Date Sampled...: 08/26/03 Date Received..: 08/27/03
Prep Date.....: 08/31/03 Analysis Date..: 10/03/03
Prep Batch #...: 3243112 Analysis Time..: 18:52
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.5 J**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	26 *	(30 - 118)
Fluorene d-10	27 *	(41 - 162)
Naphthalene-d8	40	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

D3H270264

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C SIM		3243112	3243016
002	WG	SW846 8270C SIM		3243112	3243016
003	WG	SW846 8270C SIM		3243112	3243016
004	WG	SW846 8270C SIM		3243112	3243016
005	WG	SW846 8270C SIM		3243112	3243016

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #....: D3H270264 Work Order #...: FXD4M1AA Matrix.....: WATER
MB Lot-Sample #: D3H310000-112

Prep Date.....: 08/31/03 Analysis Time..: 19:06
Analysis Date..: 10/01/03 Prep Batch #...: 3243112
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	ND	4.6	ng/L	SW846 8270C SIM
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	ND	8.6	ng/L	SW846 8270C SIM
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	ND	6.3	ng/L	SW846 8270C SIM
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	25 *	(30 - 118)
Fluorene d-10	20 *	(41 - 162)
Naphthalene-d8	24 *	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

* Surrogate recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3H270264 Work Order #...: FW49W1AC-MS Matrix.....: WG
MS Lot-Sample #: D3H270264-001 FW49W1AD-MSD
Date Sampled...: 08/26/03 Date Received..: 08/27/03
Prep Date.....: 08/31/03 Analysis Date..: 10/02/03
Prep Batch #...: 3243112 Analysis Time..: 02:45
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	0.0 a	(30 - 150)			SW846 8270C SIM
	0.0 a	(30 - 150)	0.0	(0-50)	SW846 8270C SIM
Chrysene	22 a	(30 - 132)			SW846 8270C SIM
	36	(30 - 132)	47	(0-50)	SW846 8270C SIM
Fluorene	45	(30 - 132)			SW846 8270C SIM
	61	(30 - 132)	29	(0-50)	SW846 8270C SIM
Indene	40	(30 - 150)			SW846 8270C SIM
	60	(30 - 150)	38	(0-50)	SW846 8270C SIM
2-Methylnaphthalene	50	(30 - 150)			SW846 8270C SIM
	68	(30 - 150)	30	(0-50)	SW846 8270C SIM
Naphthalene	50	(30 - 150)			SW846 8270C SIM
	72	(30 - 150)	29	(0-50)	SW846 8270C SIM
Quinoline	30	(30 - 150)			SW846 8270C SIM
	69 p	(30 - 150)	78	(0-50)	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	18 *	(30 - 118)
	29 *	(30 - 118)
Fluorene d-10	27 *	(41 - 162)
	36 *	(41 - 162)
Naphthalene-d8	34	(30 - 108)
	48	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...:	D3H270264	**Work Order #...:**	FW49W1AC-MS	**Matrix.....:**	WG
MS Lot-Sample #:	D3H270264-001		FW49W1AD-MSD		
Date Sampled...:	08/26/03	**Date Received..:**	08/27/03		
Prep Date.....:	08/31/03	**Analysis Date..:**	10/02/03		
Prep Batch #...:	3243112	**Analysis Time..:**	02:45		
Dilution Factor:	1				

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	**ND**	7.50	0.0	ng/L	0.0 a		SW846 8270C SIM
	ND	7.43	0.0	ng/L	0.0 a	0.0	SW846 8270C SIM
Chrysene	**ND**	7.50	1.65	ng/L	22 a		SW846 8270C SIM
	ND	7.43	2.68	ng/L	36	47	SW846 8270C SIM
Fluorene	**ND**	7.50	3.36	ng/L	45		SW846 8270C SIM
	ND	7.43	4.50	ng/L	61	29	SW846 8270C SIM
Indene	**ND**	7.50	3.01	ng/L	40		SW846 8270C SIM
	ND	7.43	4.43	ng/L	60	38	SW846 8270C SIM
2-Methylnaphthalene	**ND**	7.50	3.73	ng/L	50		SW846 8270C SIM
	ND	7.43	5.07	ng/L	68	30	SW846 8270C SIM
Naphthalene	**1.0**	7.50	4.73	ng/L	50		SW846 8270C SIM
	1.0	7.43	6.36	ng/L	72	29	SW846 8270C SIM
Quinoline	**ND**	7.50	2.25	ng/L	30		SW846 8270C SIM
	ND	7.43	5.11	ng/L	69 p	78	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	18 *	(30 - 118)
	29 *	(30 - 118)
Fluorene d-10	27 *	(41 - 162)
	36 *	(41 - 162)
Naphthalene-d8	34	(30 - 108)
	48	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

2.0, 2.1, 4.0, 2.3
KB 8/27/03

Chain of Custody Record

SEVERN TRENT SERVICES **Severn Trent Laboratories, Inc.**

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
City of St. Louis Park	Scott Anderson		150763
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page ____ of ____**
5005 Minnetonka Blvd.	952-924-2558		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
St. Louis Park / MN / 55416			
Project Name and Location (State)	**Carrier/Waybill Number**		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Other	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	Other	Analysis (Attach list if more space is needed): GAH-PPT-5	Special Instructions/ Conditions of Receipt
GACSLP4T 08-26-03	08-26-03	09:45												X	X	
GACSLP4TD 08-26-03	08-26-03	09:50												X	X	
GACSLP4TMS 08-26-03	08-26-03	10:00												X	X	
GACSLP4TMSD 08-26-03	08-26-03	10:05												X	X	
GACSLP10T 08-26-03	08-26-03	10:30												X	X	
GACSLP10FB 08-26-03	08-26-03	10:40												X	X	
GACSLP10FBD 08-26-03	08-26-03	10:50												X	X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By	08-26-03	11:00	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments
8

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

FOURTH QUARTER

PAH ANALYSIS

SEVERN TRENT STL

STL Denver
4955 Yarrow Street
Arvada, CO 80002

Tel: 303 736 0100 Fax: 303 431 7171
www.stl-inc.com

ANALYTICAL REPORT

5

City of St. Louis Park

Project: Reilly Tar & Chemical Corporation

Lot #: D3K040195

Mr. Scott Anderson

City of St. Louis Park
Utility Division
3752 Wooddale Avenue
St. Louis Park, MN 55416

STL DENVER

Gail DeRuzzo
Project Manager

December 12, 2003

Table Of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages
Standard Deliverables *(The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.)*	40

Supporting Documentation *(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).*	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	✓
• Volatile GC	
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

CASE NARRATIVE
D3K040195

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Nine samples were received under chain of custody on November 4, 2003. The samples were received in good condition at temperatures of 5.2, 2.9, 2.7, 3.3, and 5.6°C.

GC/MS Semivolatiles, Method SW846 8270C Acid Compounds

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The surrogate recoveries for 2-Fluorophenol, Phenol-d5, Nitrobenzene-d5, and 2-Fluorobiphenyl were outside control limits for sample D3K050195-004. As the holding time had expired, the client was contacted and it was determined to report these data without re-extraction.

No other anomalies were observed.

Data Completeness for Method 8270C Acid Compounds

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENES CALCULATION		
LOT D3K040195		
ANALYSIS: Acid Compounds by SW846 8270C		
QC Parameter	Data Planned	Valid Data Obtained
Method Blank	11	11
MB Surrogates	6	6
FB/FBD	11	11
MS	11	11
MS Surrogates	6	6
MSD	11	11
MSD Surrogates	6	6
MS/MSD RPD	11	11
Sample/Dup. RPD	11	11
LCS	11	11
LCS Surrogates	6	6
LSCD	NA	NA
LCSD Surrogates	NA	NA
Sample Surrogates	24	20
Samples and QC Internal Standard Area	24	24
TOTAL	149	145
% Completeness	97.32%	

*A MS/MSD was performed on sample GAC-SLP4TAF-110303.

Sample Duplicate Calculation for Method 8270C Acid Compounds

Sample Duplicate RPD					
LOT D3K040195					
Sample: GAC-SLP4TAF-110303		DUP: GAC-SLP4TAFD-110303			
Compound	Result	Compound	Result	RPD	RPD>50%
4-Chloro-3-methylphenol	ND	4-Chloro-3-methylphenol	ND	0.0	
2-Chlorophenol	ND	2-Chlorophenol	ND	0.0	
2,4-Dichlorophenol	ND	2,4-Dichlorophenol	ND	0.0	
2,4-Dimethylphenol	ND	2,4-Dimethylphenol	ND	0.0	
4,6-Dinitro-2-methylphenol	ND	4,6-Dinitro-2-methylphenol	ND	0.0	
2,4-Dintirophenol	ND	2,4-Dintirophenol	ND	0.0	
2-Nitrophenol	ND	2-Nitrophenol	ND	0.0	
4-Nitrophenol	ND	4-Nitrophenol	ND	0.0	
Pentachlorophenol	ND	Pentachlorophenol	ND	0.0	
Phenol	ND	Phenol	ND	0.0	
2,4,6-Trichlorophenol	ND	2,4,6-Trichlorophenol	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

GC/MS Semivolatiles, Method SW846 8270C SIM

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The analytes Benzo(e)pyrene, Fluoranthene, Naphthalene, and Phenanthrene were detected in the Method Blank below the reporting limit. No corrective action is taken for values detected in the method blanks below the reporting limits.

The LCS demonstrated recovery below the control limits for Quinoline. Quinoline has historically shown very poor and erratic recoveries. The holding time had expired and insufficient sample volume remains for re-extraction of samples. Quinoline results should be considered biased low.

The MS/MSD performed on sample D3K040195-005 demonstrated recoveries that were below the control limits for Benzo(e)pyrene and Quinoline. These anomalies may be due to matrix interference.

Detections in the Field Blank and Field Blank Duplicate are less than the reporting limit.

No other anomalies were observed.

Data Completeness for Method 8270C SIM

The results contained in the report were reviewed relative to data acceptance criteria as specified in the 2002 QAPP, and the percent completeness was determined below.

DATA COMPLETENESS CALCULATION		
LOT: D3K040195		
ANALYSIS: SW846-8270C SIM		
QC Parameter	**Data Planned**	**Valid Data Obtained**
Method Blank	31	31
MB Surrogates	3	3
LCS	7	6
LCS Surrogates	3	3
FB/FBD	62	62
MS	7	5
MS Surrogates	3	3
MSD	7	5
MSD Surrogates	3	3
MS/MSD RPD	7	7
Sample/Dup. RPD	31	31
Sample Surrogates	15	15
Samples and QC Internal Standard Area	27	27
TOTAL	**206**	**201**
% Completeness	**97.6%**	

*A MS/MSD was performed on sample GAC-SLP4T-110303.

Sample Duplicate Calculation for Method 8270C SIM

Sample Duplicate RPD					
LOT D3K040195					
Sample: GAC-SLPT-110303		DUP: GAC-SLPTD-110303			
Compound	Result	Compound	Result	RPD	RPD>50%
Acenaphthene	ND	Acenaphthene	ND	0.0	
Acenaphthylene	ND	Acenaphthylene	ND	0.0	
Acridine	ND	Acridine	ND	0.0	
Anthracene	ND	Anthracene	ND	0.0	
Benzo(a)anthracene	ND	Benzo(a)anthracene	ND	0.0	
Benzo(b)fluoranthene	ND	Benzo(b)fluoranthene	ND	0.0	
Benzo(k)fluoranthene	ND	Benzo(k)fluoranthene	ND	0.0	
2,3-Benzofuran	ND	2,3-Benzofuran	ND	0.0	
Benzo(ghi)perylene	ND	Benzo(ghi)perylene	ND	0.0	
Benzo(a)pyrene	ND	Benzo(a)pyrene	ND	0.0	
Benzo(e)pyrene	ND	Benzo(e)pyrene	ND	0.0	
Benzo(b)thiophene	ND	Benzo(b)thiophene	ND	0.0	
Biphenyl	ND	Biphenyl	ND	0.0	
Carbazole	ND	Carbazole	ND	0.0	
Chrysene	ND	Chrysene	ND	0.0	
Dibenz(a,h)anthracene	ND	Dibenz(a,h)anthracene	ND	0.0	
Dibenzofuran	ND	Dibenzofuran	ND	0.0	
Dibenzothiophene	ND	Dibenzothiophene	ND	0.0	
2,3-Dihydroindene	ND	2,3-Dihydroindene	ND	0.0	
Fluoranthene	1.2	Fluoranthene	1.4	15.4	
Fluorene	ND	Fluorene	ND	0.0	
Indene	ND	Indene	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	Indeno(1,2,3-cd)pyrene	ND	0.0	
Indole	ND	Indole	ND	0.0	
2-Methylnaphthalene	ND	2-Methylnaphthalene	1.3	NC	
1-Methylnaphthalene	ND	1-Methylnaphthalene	ND	0.0	
Naphthalene	1.6	Naphthalene	2.4	40.0	
Perylene	ND	Perylene	ND	0.0	
Phenanthrene	2.0	Phenanthrene	2.6	26.1	
Pyrene	1.1	Pyrene	1.1	0.0	
Quinoline	ND	Quinoline	ND	0.0	

RPD = Relative Percent Difference
ND = Compound not detected in the sample
p = RPD is outside of control limits
*NC = RPD not calculated, one positive result and one ND. Considered acceptable if the positive result is less than 4x the RL.

EXECUTIVE SUMMARY - Detection Highlights

D3K040195

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
GAC-SLP4T-110303 11/03/03 12:30 005				
Fluoranthene	1.2 J,B	4.6	ng/L	SW846 8270C SIM
Naphthalene	1.6 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	2.0 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	1.1 J	4.2	ng/L	SW846 8270C SIM
GAC-SLP4TD-110303 11/03/03 12:30 006				
Fluoranthene	1.4 J,B	4.6	ng/L	SW846 8270C SIM
2-Methylnaphthalene	1.3 J	5.9	ng/L	SW846 8270C SIM
Naphthalene	2.4 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	2.6 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	1.1 J	4.2	ng/L	SW846 8270C SIM
GAC-SLP4TFB-110303 11/03/03 12:30 007				
Fluoranthene	1.1 J,B	4.6	ng/L	SW846 8270C SIM
Naphthalene	1.8 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.6 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	0.96 J	4.2	ng/L	SW846 8270C SIM
GAC-SLP4TFBD-110303 11/03/03 12:30 008				
Fluoranthene	1.2 J,B	4.6	ng/L	SW846 8270C SIM
Naphthalene	2.2 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.7 J,B	6.3	ng/L	SW846 8270C SIM
GAC-SLP10T-110303 11/03/03 12:30 009				
Fluoranthene	1.6 J,B	4.6	ng/L	SW846 8270C SIM
Naphthalene	1.6 J,B	8.6	ng/L	SW846 8270C SIM
Phenanthrene	1.8 J,B	6.3	ng/L	SW846 8270C SIM
Pyrene	1.2 J	4.2	ng/L	SW846 8270C SIM

METHODS SUMMARY

D3K040195

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Base/Neutrals and Acids	SW846 8270C SIM	SW846 3520C
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D3K040195

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8270C	David Kidd	007536
SW846 8270C SIM	Tim O'Donnell	000443

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D3K040195

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
F339K	001	GAC-SLP4TAF-110303	11/03/03	13:00
F339N	002	GAC-SLP4TAFD-110303	11/03/03	13:00
F3390	003	GAC-SLP4TAFFB-110303	11/03/03	13:00
F3392	004	GAC-SLP10TAF-110303	11/03/03	13:00
F3397	005	GAC-SLP4T-110303	11/03/03	12:30
F34AN	006	GAC-SLP4TD-110303	11/03/03	12:30
F34AP	007	GAC-SLP4TFB-110303	11/03/03	12:30
F34AR	008	GAC-SLP4TFBD-110303	11/03/03	12:30
F34AT	009	GAC-SLP10T-110303	11/03/03	12:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4T-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-005	**Work Order #...:** F33971AA	**Matrix.....:** WG
Date Sampled...: 11/03/03	**Date Received..:** 11/04/03	
Prep Date.....: 11/07/03	**Analysis Date..:** 12/04/03	
Prep Batch #...: 3312127	**Analysis Time..:** 23:02	
Dilution Factor: 1		
	Method.....: SW846 8270C SIM	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
7,12-Dimethylbenz(a)-anthracene	ND	2.8	ng/L
3-Methylcholanthrene	ND	4.4	ng/L
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	**1.2 J,B**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.6 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**2.0 J,B**	**6.3**	**ng/L**
Pyrene	**1.1 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	45	(30 - 118)
Fluorene d-10	50	(41 - 162)
Naphthalene-d8	64	(30 - 108)

(Continued on next page)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4T-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-005 Work Order #...: F33971AA Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TD-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-006 Work Order #...: F34AN1AA Matrix.....: WG
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/07/03 Analysis Date..: 12/05/03
Prep Batch #...: 3312127 Analysis Time..: 00:52
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
7,12-Dimethylbenz(a)-anthracene	ND	2.8	ng/L
3-Methylcholanthrene	ND	4.4	ng/L
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	**1.4 J,B**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	**1.3 J**	**5.9**	**ng/L**
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**2.4 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**2.6 J,B**	**6.3**	**ng/L**
Pyrene	**1.1 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	42	(30 - 118)
Fluorene d-10	62	(41 - 162)
Naphthalene-d8	70	(30 - 108)

(Continued on next page)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TD-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-006 Work Order #...: F34AN1AA Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFB-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-007 Work Order #...: F34AP1AA Matrix.....: WG
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/07/03 Analysis Date..: 12/05/03
Prep Batch #...: 3312127 Analysis Time..: 01:29
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
7,12-Dimethylbenz(a)-anthracene	ND	2.8	ng/L
3-Methylcholanthrene	ND	4.4	ng/L
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	**1.1 J,B**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.8 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.6 J,B**	**6.3**	**ng/L**
Pyrene	**0.96 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	63	(30 - 118)
Fluorene d-10	54	(41 - 162)
Naphthalene-d8	58	(30 - 108)

(Continued on next page)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFB-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-007 Work Order #...: F34AP1AA Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFBD-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-008 Work Order #...: F34AR1AA Matrix.....: WG
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/07/03 Analysis Date..: 12/05/03
Prep Batch #...: 3312127 Analysis Time..: 02:06
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
7,12-Dimethylbenz(a)-anthracene	ND	2.8	ng/L
3-Methylcholanthrene	ND	4.4	ng/L
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	**1.2 J,B**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**2.2 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.7 J,B**	**6.3**	**ng/L**
Pyrene	ND	4.2	ng/L
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	64	(30 - 118)
Fluorene d-10	61	(41 - 162)
Naphthalene-d8	63	(30 - 108)

(Continued on next page)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TFBD-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-008 Work Order #...: F34AR1AA Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP10T-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-009 Work Order #...: F34AT1AA Matrix.....: WG
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/07/03 Analysis Date..: 12/05/03
Prep Batch #...: 3312127 Analysis Time..: 02:43
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
7,12-Dimethylbenz(a)-anthracene	ND	2.8	ng/L
3-Methylcholanthrene	ND	4.4	ng/L
Acenaphthene	ND	5.7	ng/L
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	ND	5.2	ng/L
Biphenyl	ND	5.6	ng/L
Carbazole	ND	3.8	ng/L
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	ND	5.0	ng/L
Fluoranthene	**1.6 J,B**	**4.6**	**ng/L**
Fluorene	ND	4.1	ng/L
Indene	ND	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	**1.6 J,B**	**8.6**	**ng/L**
Perylene	ND	3.3	ng/L
Phenanthrene	**1.8 J,B**	**6.3**	**ng/L**
Pyrene	**1.2 J**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	32	(30 - 118)
Fluorene d-10	50	(41 - 162)
Naphthalene-d8	62	(30 - 108)

(Continued on next page)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP10T-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-009 Work Order #...: F34AT1AA Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

QC DATA ASSOCIATION SUMMARY

D3K040195

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WG	SW846 8270C		3313139	3313025
002	WG	SW846 8270C		3313139	3313025
003	WG	SW846 8270C		3313139	3313025
004	WG	SW846 8270C		3313139	3313025
005	WG	SW846 8270C SIM		3312127	3312015
006	WG	SW846 8270C SIM		3312127	3312015
007	WG	SW846 8270C SIM		3312127	3312015
008	WG	SW846 8270C SIM		3312127	3312015
009	WG	SW846 8270C SIM		3312127	3312015

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F4GP71AA Matrix.....: WATER
MB Lot-Sample #: D3K090000-139

Prep Date.....: 11/09/03 Analysis Time..: 15:11
Analysis Date..: 12/05/03 Prep Batch #...: 3313139
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
4-Chloro-3-methylphenol	ND	10	ug/L	SW846 8270C
2-Chlorophenol	ND	10	ug/L	SW846 8270C
2,4-Dichlorophenol	ND	10	ug/L	SW846 8270C
2,4-Dimethylphenol	ND	10	ug/L	SW846 8270C
4,6-Dinitro-2-methylphenol	ND	50	ug/L	SW846 8270C
2,4-Dinitrophenol	ND	50	ug/L	SW846 8270C
2-Nitrophenol	ND	10	ug/L	SW846 8270C
4-Nitrophenol	ND	50	ug/L	SW846 8270C
Pentachlorophenol	ND	50	ug/L	SW846 8270C
Phenol	ND	10	ug/L	SW846 8270C
2,4,6-Trichlorophenol	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	65	(32 - 116)
Phenol-d5	70	(40 - 111)
Nitrobenzene-d5	70	(53 - 107)
2-Fluorobiphenyl	61	(31 - 105)
2,4,6-Tribromophenol	77	(42 - 122)
Terphenyl-d14	71	(21 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F4GP71AC Matrix.....: WATER
LCS Lot-Sample#: D3K090000-139
Prep Date.....: 11/09/03 Analysis Date..: 12/05/03
Prep Batch #...: 3313139 Analysis Time..: 15:36
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
4-Chloro-3-methylphenol	**74**	**(59 - 106)**	**SW846 8270C**
2-Chlorophenol	**73**	**(59 - 105)**	**SW846 8270C**
4-Nitrophenol	**76**	**(43 - 118)**	**SW846 8270C**
Pentachlorophenol	**73**	**(48 - 114)**	**SW846 8270C**
Phenol	**70**	**(56 - 106)**	**SW846 8270C**
Acenaphthene	**71**	**(55 - 97)**	**SW846 8270C**
1,4-Dichlorobenzene	**62**	**(31 - 98)**	**SW846 8270C**
2,4-Dinitrotoluene	**69**	**(57 - 113)**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**62**	**(51 - 99)**	**SW846 8270C**
Pyrene	**71**	**(51 - 103)**	**SW846 8270C**
1,2,4-Trichloro-benzene	**68**	**(36 - 99)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	67	(54 - 105)
Phenol-d5	71	(55 - 106)
Nitrobenzene-d5	73	(58 - 108)
2-Fluorobiphenyl	69	(53 - 97)
2,4,6-Tribromophenol	83	(62 - 113)
Terphenyl-d14	78	(55 - 109)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F4GP71AC Matrix.....: WATER
LCS Lot-Sample#: D3K090000-139
Prep Date.....: 11/09/03 Analysis Date..: 12/05/03
Prep Batch #...: 3313139 Analysis Time..: 15:36
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
4-Chloro-3-methylphenol	**150**	**110**	**ug/L**	**74**	**SW846 8270C**
2-Chlorophenol	**150**	**110**	**ug/L**	**73**	**SW846 8270C**
4-Nitrophenol	**150**	**114**	**ug/L**	**76**	**SW846 8270C**
Pentachlorophenol	**150**	**110**	**ug/L**	**73**	**SW846 8270C**
Phenol	**150**	**104**	**ug/L**	**70**	**SW846 8270C**
Acenaphthene	**100**	**71.0**	**ug/L**	**71**	**SW846 8270C**
1,4-Dichlorobenzene	**100**	**62.4**	**ug/L**	**62**	**SW846 8270C**
2,4-Dinitrotoluene	**100**	**69.2**	**ug/L**	**69**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**100**	**61.8**	**ug/L**	**62**	**SW846 8270C**
Pyrene	**100**	**70.8**	**ug/L**	**71**	**SW846 8270C**
1,2,4-Trichloro-benzene	**100**	**67.8**	**ug/L**	**68**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	67	(54 - 105)
Phenol-d5	71	(55 - 106)
Nitrobenzene-d5	73	(58 - 108)
2-Fluorobiphenyl	69	(53 - 97)
2,4,6-Tribromophenol	83	(62 - 113)
Terphenyl-d14	78	(55 - 109)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F339K1AC-MS Matrix.....: WG
MS Lot-Sample #: D3K040195-001 F339K1AD-MSD
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/09/03 Analysis Date..: 12/05/03
Prep Batch #...: 3313139 Analysis Time..: 20:05
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
4-Chloro-3-methylphenol	72	(49 - 102)			SW846 8270C
	77	(49 - 102)	5.8	(0-40)	SW846 8270C
2-Chlorophenol	66	(49 - 98)			SW846 8270C
	72	(49 - 98)	6.2	(0-40)	SW846 8270C
4-Nitrophenol	81	(34 - 116)			SW846 8270C
	83	(34 - 116)	0.46	(0-40)	SW846 8270C
Pentachlorophenol	83	(34 - 116)			SW846 8270C
	87	(34 - 116)	2.4	(0-40)	SW846 8270C
Phenol	64	(46 - 98)			SW846 8270C
	70	(46 - 98)	7.2	(0-40)	SW846 8270C
Acenaphthene	69	(50 - 96)			SW846 8270C
	75	(50 - 96)	7.6	(0-40)	SW846 8270C
1,4-Dichlorobenzene	56	(41 - 92)			SW846 8270C
	62	(41 - 92)	8.6	(0-30)	SW846 8270C
2,4-Dinitrotoluene	72	(51 - 106)			SW846 8270C
	75	(51 - 106)	1.8	(0-40)	SW846 8270C
N-Nitrosodi-n-propyl-amine	60	(46 - 101)			SW846 8270C
	65	(46 - 101)	8.0	(0-40)	SW846 8270C
Pyrene	72	(39 - 103)			SW846 8270C
	76	(39 - 103)	3.9	(0-40)	SW846 8270C
1,2,4-Trichloro-benzene	64	(46 - 92)			SW846 8270C
	70	(46 - 92)	7.0	(0-40)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	60	(32 - 116)
	64	(32 - 116)
Phenol-d5	65	(40 - 111)
	69	(40 - 111)
Nitrobenzene-d5	67	(53 - 107)
	73	(53 - 107)
2-Fluorobiphenyl	63	(31 - 105)
	67	(31 - 105)
2,4,6-Tribromophenol	88	(42 - 122)
	91	(42 - 122)

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F339K1AC-MS Matrix.....: WG
MS Lot-Sample #: D3K040195-001 F339K1AD-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	77	(21 - 125)
	80	(21 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F339K1AC-MS Matrix.....: WG
MS Lot-Sample #: D3K040195-001 F339K1AD-MSD
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/09/03 Analysis Date..: 12/05/03
Prep Batch #...: 3313139 Analysis Time..: 20:05
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
4-Chloro-3-methylphenol	ND	157	113	ug/L	72		SW846 8270C
	ND	155	119	ug/L	77	5.8	SW846 8270C
2-Chlorophenol	ND	157	105	ug/L	66		SW846 8270C
	ND	155	111	ug/L	72	6.2	SW846 8270C
4-Nitrophenol	ND	157	128	ug/L	81		SW846 8270C
	ND	155	129	ug/L	83	0.46	SW846 8270C
Pentachlorophenol	ND	157	131	ug/L	83		SW846 8270C
	ND	155	135	ug/L	87	2.4	SW846 8270C
Phenol	ND	157	101	ug/L	64		SW846 8270C
	ND	155	108	ug/L	70	7.2	SW846 8270C
Acenaphthene	ND	105	71.9	ug/L	69		SW846 8270C
	ND	104	77.6	ug/L	75	7.6	SW846 8270C
1,4-Dichlorobenzene	ND	105	58.8	ug/L	56		SW846 8270C
	ND	104	64.1	ug/L	62	8.6	SW846 8270C
2,4-Dinitrotoluene	ND	105	76.0	ug/L	72		SW846 8270C
	ND	104	77.4	ug/L	75	1.8	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	105	62.5	ug/L	60		SW846 8270C
	ND	104	67.7	ug/L	65	8.0	SW846 8270C
Pyrene	ND	105	75.4	ug/L	72		SW846 8270C
	ND	104	78.4	ug/L	76	3.9	SW846 8270C
1,2,4-Trichloro-benzene	ND	105	67.4	ug/L	64		SW846 8270C
	ND	104	72.3	ug/L	70	7.0	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	60	(32 - 116)
	64	(32 - 116)
Phenol-d5	65	(40 - 111)
	69	(40 - 111)
Nitrobenzene-d5	67	(53 - 107)
	73	(53 - 107)
2-Fluorobiphenyl	63	(31 - 105)
	67	(31 - 105)
2,4,6-Tribromophenol	88	(42 - 122)
	91	(42 - 122)

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 **Work Order #...:** F339K1AC-MS **Matrix.....:** WG
MS Lot-Sample #: D3K040195-001 F339K1AD-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	77	(21 - 125)
	80	(21 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F4FHD1AA Matrix.....: WATER
MB Lot-Sample #: D3K080000-127

Prep Date.....: 11/07/03 Analysis Time..: 18:05
Analysis Date..: 12/04/03 Prep Batch #...: 3312127
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
7,12-Dimethylbenz(a)-anthracene	ND	2.8	ng/L	SW846 8270C SIM
3-Methylcholanthrene	ND	4.4	ng/L	SW846 8270C SIM
Acenaphthene	ND	5.7	ng/L	SW846 8270C SIM
Acenaphthylene	ND	4.8	ng/L	SW846 8270C SIM
Acridine	ND	6.2	ng/L	SW846 8270C SIM
Anthracene	ND	4.2	ng/L	SW846 8270C SIM
Benzo(a)anthracene	ND	4.3	ng/L	SW846 8270C SIM
Benzo(b)fluoranthene	ND	4.7	ng/L	SW846 8270C SIM
Benzo(k)fluoranthene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Benzofuran	ND	5.4	ng/L	SW846 8270C SIM
Benzo(ghi)perylene	ND	6.2	ng/L	SW846 8270C SIM
Benzo(a)pyrene	ND	2.5	ng/L	SW846 8270C SIM
Benzo(e)pyrene	**1.0 J**	**4.3**	**ng/L**	**SW846 8270C SIM**
Benzo(b)thiophene	ND	5.2	ng/L	SW846 8270C SIM
Biphenyl	ND	5.6	ng/L	SW846 8270C SIM
Carbazole	ND	3.8	ng/L	SW846 8270C SIM
Chrysene	ND	5.6	ng/L	SW846 8270C SIM
Dibenzo(a,h)anthracene	ND	5.9	ng/L	SW846 8270C SIM
Dibenzofuran	ND	5.7	ng/L	SW846 8270C SIM
Dibenzothiophene	ND	4.1	ng/L	SW846 8270C SIM
2,3-Dihydroindene	ND	5.0	ng/L	SW846 8270C SIM
Fluoranthene	**1.2 J**	**4.6**	**ng/L**	**SW846 8270C SIM**
Fluorene	ND	4.1	ng/L	SW846 8270C SIM
Indene	ND	4.7	ng/L	SW846 8270C SIM
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L	SW846 8270C SIM
Indole	ND	4.7	ng/L	SW846 8270C SIM
2-Methylnaphthalene	ND	5.9	ng/L	SW846 8270C SIM
1-Methylnaphthalene	ND	5.6	ng/L	SW846 8270C SIM
Naphthalene	**1.1 J**	**8.6**	**ng/L**	**SW846 8270C SIM**
Perylene	ND	3.3	ng/L	SW846 8270C SIM
Phenanthrene	**1.4 J**	**6.3**	**ng/L**	**SW846 8270C SIM**
Pyrene	ND	4.2	ng/L	SW846 8270C SIM
Quinoline	ND	9.0	ng/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	73	(30 - 118)
Fluorene d-10	58	(41 - 162)
Naphthalene-d8	75	(30 - 108)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F4FHD1AA Matrix.....: WATER

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F4FHD1AC Matrix.....: WATER
LCS Lot-Sample#: D3K080000-127
Prep Date.....: 11/07/03 Analysis Date..: 12/04/03
Prep Batch #...: 3312127 Analysis Time..: 18:42
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(e)pyrene	**78**	**(30 - 150)**	**SW846 8270C SIM**
Chrysene	**72**	**(30 - 132)**	**SW846 8270C SIM**
Fluorene	**75**	**(30 - 132)**	**SW846 8270C SIM**
Indene	**67**	**(30 - 150)**	**SW846 8270C SIM**
2-Methylnaphthalene	**77**	**(30 - 150)**	**SW846 8270C SIM**
Naphthalene	**91**	**(30 - 150)**	**SW846 8270C SIM**
Quinoline	**0.0 a**	**(30 - 150)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(30 - 118)
Fluorene d-10	66	(41 - 162)
Naphthalene-d8	79	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F4FHD1AC Matrix.....: WATER
LCS Lot-Sample#: D3K080000-127
Prep Date.....: 11/07/03 Analysis Date..: 12/04/03
Prep Batch #...: 3312127 Analysis Time..: 18:42
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzo(e)pyrene	10.0	7.82	ng/L	78	SW846 8270C S
Chrysene	10.0	7.25	ng/L	72	SW846 8270C S
Fluorene	10.0	7.52	ng/L	75	SW846 8270C S
Indene	10.0	6.74	ng/L	67	SW846 8270C S
2-Methylnaphthalene	10.0	7.73	ng/L	77	SW846 8270C S
Naphthalene	10.0	9.10	ng/L	91	SW846 8270C S
Quinoline	10.0	0.0 a	ng/L	0.0	SW846 8270C S

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	87	(30 - 118)
Fluorene d-10	66	(41 - 162)
Naphthalene-d8	79	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F33971AC-MS Matrix.....: WG
MS Lot-Sample #: D3K040195-005 F33971AD-MSD
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/07/03 Analysis Date..: 12/04/03
Prep Batch #...: 3312127 Analysis Time..: 23:39
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(e)pyrene	0.0 a	(30 - 150)			SW846 8270C SIM
	0.0 a	(30 - 150)	0.0	(0-50)	SW846 8270C SIM
Chrysene	34	(30 - 132)			SW846 8270C SIM
	34	(30 - 132)	10	(0-50)	SW846 8270C SIM
Fluorene	54	(30 - 132)			SW846 8270C SIM
	57	(30 - 132)	3.8	(0-50)	SW846 8270C SIM
Indene	56	(30 - 150)			SW846 8270C SIM
	61	(30 - 150)	0.25	(0-50)	SW846 8270C SIM
2-Methylnaphthalene	63	(30 - 150)			SW846 8270C SIM
	68	(30 - 150)	0.50	(0-50)	SW846 8270C SIM
Naphthalene	62	(30 - 150)			SW846 8270C SIM
	67	(30 - 150)	0.20	(0-50)	SW846 8270C SIM
Quinoline	0.0 a	(30 - 150)			SW846 8270C SIM
	0.0 a	(30 - 150)	0.0	(0-50)	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	49	(30 - 118)
	43	(30 - 118)
Fluorene d-10	48	(41 - 162)
	49	(41 - 162)
Naphthalene-d8	60	(30 - 108)
	64	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D3K040195 Work Order #...: F33971AC-MS Matrix.....: WG
MS Lot-Sample #: D3K040195-005 F33971AD-MSD
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/07/03 Analysis Date..: 12/04/03
Prep Batch #...: 3312127 Analysis Time..: 23:39
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzo(e)pyrene	ND	10.6	0.0	ng/L	0.0 a		SW846 8270C SIM
	ND	9.76	0.0	ng/L	0.0 a	0.0	SW846 8270C SIM
Chrysene	ND	10.6	3.64	ng/L	34		SW846 8270C SIM
	ND	9.76	3.29	ng/L	34	10	SW846 8270C SIM
Fluorene	ND	10.6	5.74	ng/L	54		SW846 8270C SIM
	ND	9.76	5.52	ng/L	57	3.8	SW846 8270C SIM
Indene	ND	10.6	6.00	ng/L	56		SW846 8270C SIM
	ND	9.76	5.99	ng/L	61	0.25	SW846 8270C SIM
2-Methylnaphthalene	ND	10.6	6.71	ng/L	63		SW846 8270C SIM
	ND	9.76	6.68	ng/L	68	0.50	SW846 8270C SIM
Naphthalene	1.6	10.6	8.24	ng/L	62		SW846 8270C SIM
	1.6	9.76	8.22	ng/L	67	0.20	SW846 8270C SIM
Quinoline	ND	10.6	0.0	ng/L	0.0 a		SW846 8270C SIM
	ND	9.76	0.0	ng/L	0.0 a	0.0	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	49	(30 - 118)
	43	(30 - 118)
Fluorene d-10	48	(41 - 162)
	49	(41 - 162)
Naphthalene-d8	60	(30 - 108)
	64	(30 - 108)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

2.4, 3.3, 5.6

WB 11/4/03

STL Denver

Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client CITY OF ST. LOUIS PARK UTILITY DIVISION	**Project Manager** SCOTT ANDERON	**Date** 11-3-03	**Chain of Custody Number** 150739
Address 3752 WOODDALE AVENUE	**Telephone Number (Area Code)/Fax Number** 924-2557 (952) 924-2570	**Lab Number**	**Page** ____ of ____
City ST. LOUIS PARK, MN 55416	**Site Contact** SAME	**Lab Contact**	
Project Name and Location (State) SAME	**Carrier/Waybill Number** FEDEX 841814832372		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H_2SO_4	HNO_3	HCl	NaOH	ZnAc/NaOH	# Containers	Analysis (Attach list if more space is needed): PPL PAH EXTENDED	Special Instructions/ Conditions of Receipt
1 AC-SLP4T-110303 C# 0006	11-3-03	1230		X			X						6	X	SEE SAMPLE
2 AC-SLP4TD-110303				X			X						6	X	PLAN B-2
3 AC-SLP4TMS-110303 C# 0007				X			X						6	X	
4 AC-SLP4TMSD-110303				X			X						6	X	
5 AC-SLP4TFB-110303 C# 0012				X			X						6	X	
6 AC-SLP4TFBD-110303				X			X						6	X	
7 AC-SLP10T-110303 C#	11-3-03	1230		X			X						6	X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time
1. Relinquished By MJ PF	11-3-03	1400
2. Relinquished By		
3. Relinquished By		

	Date	Time
1. Received By Aaron Bindell	11/4/03	0830
2. Received By		
3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

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RAP SECTION 4.3.3 (D)

PAH FEED WATER ANALYSIS

CITY OF ST. LOUIS PARK

Client Sample ID: SLP4-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-008 Work Order #...: FN5N61AA Matrix.....: WG
Date Sampled...: 05/20/03 Date Received..: 05/21/03
Prep Date.....: 05/26/03 Analysis Date..: 06/17/03
Prep Batch #...: 3146097 Analysis Time..: 18:56
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**82**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	ND	6.2	ng/L
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**8.5**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**6.8**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**86**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	**30**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	**7.6**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	37	(30 - 118)
Fluorene d-10	47	(41 - 162)
Naphthalene-d8	52	(30 - 108)

CITY OF ST. LOUIS PARK

Client Sample ID: SLP4D-052003

GC/MS Semivolatiles

Lot-Sample #...: D3E210221-009 Work Order #...: FN5N71AA Matrix.....: WG
Date Sampled...: 05/20/03 Date Received..: 05/21/03
Prep Date.....: 05/26/03 Analysis Date..: 06/17/03
Prep Batch #...: 3146097 Analysis Time..: 20:50
Dilution Factor: 1

Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	**92**	**5.7**	**ng/L**
Acenaphthylene	ND	4.8	ng/L
Acridine	**4.1 J**	**6.2**	**ng/L**
Anthracene	ND	4.2	ng/L
Benzo(a)anthracene	ND	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	**9.3**	**5.2**	**ng/L**
Biphenyl	ND	5.6	ng/L
Carbazole	**7.7**	**3.8**	**ng/L**
Chrysene	ND	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	ND	5.7	ng/L
Dibenzothiophene	ND	4.1	ng/L
2,3-Dihydroindene	**95**	**5.0**	**ng/L**
Fluoranthene	ND	4.6	ng/L
Fluorene	ND	4.1	ng/L
Indene	**33**	**4.7**	**ng/L**
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	ND	4.7	ng/L
2-Methylnaphthalene	ND	5.9	ng/L
1-Methylnaphthalene	ND	5.6	ng/L
Naphthalene	ND	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	ND	6.3	ng/L
Pyrene	**8.1**	**4.2**	**ng/L**
Quinoline	ND	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	34	(30 - 118)
Fluorene d-10	54	(41 - 162)
Naphthalene-d8	61	(30 - 108)

NOTE(S):

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP10-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-008 Work Order #...: FXJGE1AA Matrix.....: WG
Date Sampled...: 09/02/03 Date Received..: 09/03/03
Prep Date.....: 09/07/03 Analysis Date..: 10/02/03
Prep Batch #...: 3250094 Analysis Time..: 18:35
Dilution Factor: 1
Method.....: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthylene	74	4.8	ng/L
Acridine	3.4 J	6.2	ng/L
Anthracene	7.2	4.2	ng/L
Benzo(a)anthracene	1.5 J	4.3	ng/L
Benzo(b)fluoranthene	ND	4.7	ng/L
Benzo(k)fluoranthene	ND	4.1	ng/L
2,3-Benzofuran	ND	5.4	ng/L
Benzo(ghi)perylene	ND	6.2	ng/L
Benzo(a)pyrene	ND	2.5	ng/L
Benzo(e)pyrene	ND	4.3	ng/L
Benzo(b)thiophene	41	5.2	ng/L
Biphenyl	15	5.6	ng/L
Carbazole	26	3.8	ng/L
Chrysene	0.99 J	5.6	ng/L
Dibenzo(a,h)anthracene	ND	5.9	ng/L
Dibenzofuran	54	5.7	ng/L
Dibenzothiophene	18	4.1	ng/L
Fluoranthene	28	4.6	ng/L
Indene	56	4.7	ng/L
Indeno(1,2,3-cd)pyrene	ND	5.4	ng/L
Indole	4.3 J	4.7	ng/L
2-Methylnaphthalene	1.4 J	5.9	ng/L
1-Methylnaphthalene	85	5.6	ng/L
Naphthalene	7.5 J	8.6	ng/L
Perylene	ND	3.3	ng/L
Phenanthrene	17	6.3	ng/L
Pyrene	53	4.2	ng/L
Quinoline	5.7 J	9.0	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	26 *	(30 - 118)
Fluorene d-10	46	(41 - 162)
Naphthalene-d8	42	(30 - 108)

NOTE(S):

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

CITY OF ST. LOUIS PARK

Client Sample ID: SLP10-090203

GC/MS Semivolatiles

Lot-Sample #...: D3I030310-008	Work Order #...: FXJGE2AA	Matrix.....: WG	
Date Sampled...: 09/02/03	Date Received..: 09/03/03		
Prep Date.....: 09/07/03	Analysis Date..: 10/02/03		
Prep Batch #...: 3250094	Analysis Time..: 22:33		
Dilution Factor: 10			
	Method.....: SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	500	57	ng/L
2,3-Dihydroindene	210	50	ng/L
Fluorene	130	41	ng/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Chrysene-d12	NC,DIL	(30 - 118)
Fluorene d-10	NC,DIL	(41 - 162)
Naphthalene-d8	NC,DIL	(30 - 108)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

RAP SECTION 4.3.4

ACID FRACTION ANALYSIS

CASE NARRATIVE
D3K040195

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Nine samples were received under chain of custody on November 4, 2003. The samples were received in good condition at temperatures of 5.2, 2.9, 2.7, 3.3, and 5.6°C.

GC/MS Semivolatiles, Method SW846 8270C Acid Compounds

A project-specific lower acceptable recovery limit of 30% for all QC samples and surrogates has been designated for analytical work performed under the 2003 Sampling Plan for the Reilly Industries, Inc. NPL Site. This lower limit is used for this project, rather than historically generated lower recovery limits. All recoveries in this report are above the 30% minimum threshold with the exceptions noted below.

The surrogate recoveries for 2-Fluorophenol, Phenol-d5, Nitrobenzene-d5, and 2-Fluorobiphenyl were outside control limits for sample D3K050195-004. As the holding time had expired, the client was contacted and it was determined to report these data without re-extraction.

No other anomalies were observed.

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TAF-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-001 Work Order #...: F339K1AA Matrix.....: WG
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/09/03 Analysis Date..: 12/05/03
Prep Batch #...: 3313139 Analysis Time..: 19:41
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
4-Chloro-3-methylphenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
4-Nitrophenol	ND	50	ug/L
Pentachlorophenol	ND	50	ug/L
Phenol	ND	10	ug/L
2,4,6-Trichloro-phenol	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	69	(32 - 116)
Phenol-d5	73	(40 - 111)
Nitrobenzene-d5	77	(53 - 107)
2-Fluorobiphenyl	68	(31 - 105)
2,4,6-Tribromophenol	93	(42 - 122)
Terphenyl-d14	81	(21 - 125)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TAFD-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-002 Work Order #...: F339N1AA Matrix.....: WG
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/09/03 Analysis Date..: 12/05/03
Prep Batch #...: 3313139 Analysis Time..: 20:53
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
4-Chloro-3-methylphenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
4-Nitrophenol	ND	50	ug/L
Pentachlorophenol	ND	50	ug/L
Phenol	ND	10	ug/L
2,4,6-Trichloro-phenol	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	70	(32 - 116)
Phenol-d5	72	(40 - 111)
Nitrobenzene-d5	76	(53 - 107)
2-Fluorobiphenyl	70	(31 - 105)
2,4,6-Tribromophenol	88	(42 - 122)
Terphenyl-d14	82	(21 - 125)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP4TAFFB-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-003 **Work Order #...:** F33901AA **Matrix.....:** WG
Date Sampled...: 11/03/03 **Date Received..:** 11/04/03
Prep Date.....: 11/09/03 **Analysis Date..:** 12/05/03
Prep Batch #...: 3313139 **Analysis Time..:** 21:17
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
4-Chloro-3-methylphenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
4-Nitrophenol	ND	50	ug/L
Pentachlorophenol	ND	50	ug/L
Phenol	ND	10	ug/L
2,4,6-Trichloro-phenol	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	69	(32 - 116)
Phenol-d5	73	(40 - 111)
Nitrobenzene-d5	73	(53 - 107)
2-Fluorobiphenyl	69	(31 - 105)
2,4,6-Tribromophenol	92	(42 - 122)
Terphenyl-d14	81	(21 - 125)

CITY OF ST. LOUIS PARK

Client Sample ID: GAC-SLP10TAF-110303

GC/MS Semivolatiles

Lot-Sample #...: D3K040195-004 Work Order #...: F33921AA Matrix.....: WG
Date Sampled...: 11/03/03 Date Received..: 11/04/03
Prep Date.....: 11/09/03 Analysis Date..: 12/05/03
Prep Batch #...: 3313139 Analysis Time..: 21:41
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
4-Chloro-3-methylphenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
4-Nitrophenol	ND	50	ug/L
Pentachlorophenol	ND	50	ug/L
Phenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	0.0 *	(32 - 116)
Phenol-d5	0.0 *	(40 - 111)
Nitrobenzene-d5	0.0 *	(53 - 107)
2-Fluorobiphenyl	5.8 *	(31 - 105)
2,4,6-Tribromophenol	81	(42 - 122)
Terphenyl-d14	88	(21 - 125)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Chain of Custody Record

SEVERN TRENT **STL**

Severn Trent Laboratories, Inc.

STL Denver
4955 Yarrow Street
Arvada, CO 80002

STL Denver

1/4/03

STL-4124 (0901)

Client CITY OF ST. LOUIS PARK UTILITY DIVISION	**Project Manager** SCOTT ANDERSON	**Date** 11-3-03	**Chain of Custody Number** 289207
Address 3752 WOODDALE AVENUE	**Telephone Number (Area Code)/Fax Number** 924-2557 (952) 924-2570	**Lab Number**	**Page** ____ of ____
City ST. LOUIS PARK, MN 55416	**Site Contact** SAME	**Lab Contact**	
Project Name and Location (State) SAME	**Carrier/Waybill Number** FED EX 841814832372		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	#	Analysis (Attach list if more space is needed): ACID FRACTION EPA 625	Special Instructions/ Conditions of Receipt
GAC-SLP4TAF-110303	11-3-03	1:00		X			X						2	X	ACID FRACTION EPA 625
GAC-SLP4TAFD-110303				X			X						2	X	
GAC-SLP4TAFMS-110303				X			X						2	X	
GAC-SLP4TAFMSD-110303				X			X						2	X	
GAC-SLP4TAFFB-110303				X			X						2	X	
GAC-SLP10TAB-110303				X			X						2	X	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months
(A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By [signature]	11-3-03	1400	1. Received By Aaron Bindel	11/4/03	0830
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report: CANARY - Stays with the Sample; PINK - Field Copy